

What Australian Nursing Students Value as Important in Undertaking Rural Practice

Daniel R. Terry¹

Blake Peck, PhD²

Andrew Smith, MPH³

Tyrin Stevenson, MHS⁴

Hoang Nguyen, PhD⁵

Ed Baker, PhD⁶

¹ Senior Lecturer and Academic Integrity Officer, School of Nursing and Healthcare Professions, Federation University Australia, Ballarat, Australia, d.terry@federation.edu.au

² Senior Lecturer and Graduate Program Coordinator, School of Nursing and Healthcare Professions, Federation University Australia, Ballarat, Australia, b.peck@federation.edu.au

³ Lecturer and Undergraduate Program Coordinator, School of Nursing and Healthcare Professions, Federation University Australia, Ballarat, Australia, andrew.smith@federation.edu.au

⁴ Adjunct Professor, Center for Health Policy, Boise State University, Boise, Idaho, USA, tyrinstevenson@boisestate.edu

⁵ Lecturer, Wicking Dementia Research and Education Centre, University of Tasmania, Hobart, Australia, hoang.nguyen@utas.edu.au

⁶ Professor, Department of Community and Environmental Health and Director, Center for Health Policy, Boise State University, Boise, Idaho, USA, ebaker@boisestate.edu

Abstract

Background: Rural health services in Australia are continually challenged by both the recruitment and retention of the nursing workforce. The aim of the study was to examine what nursing students consider the most important factors for undertaking a rural career in Australia.

Methods: Nursing students (n=1,982) studying a three-year bachelor's degree at an Australian University were invited to complete an online survey that examined their rural practice intentions. The questionnaire included demographic, rural background and career intentions, and a modified Nursing Community Apgar Questionnaire (NCAQ).

Results: The factors identified most important among nursing students when considering rural practice include patient safety and high-quality care, having autonomy and respect from management, the establishment of positive relationships and good communication between different generations of nurses, and the work environment providing job satisfaction with good morale.

Conclusions: This study provided insight for rural and regional universities and health services to better demonstrate what students indicate is important to take up rural practice, while highlighting unique challenges for the rural nursing workforce. Key elements are proposed that may be augmented at the university and health service level to guide recruitment and possibly retention. Rural recruitment and retention of new graduate nurses may be better achieved by addressing what nursing students feel are most important to them when considering rural practice, which are focused around management, decision-making, and practice environment factors rather than economic or community-based factors. The greatest importance to students is the 'fit between' them and the agency and much less about their 'fit with' the community into which they will be entering.

Keywords: Nurses, Students, Health Workforce, Recruitment and Retention, Community Apgar

What Australian Nursing Students Value as Important in Undertaking Rural Practice

Along with other healthcare professionals, nurses maintain the viability of rural health services; however, rural communities experience significant challenges recruiting and retaining nurses, which is exacerbated by an aging workforce (Cramer, Duncan, Megel, & Pitkin 2009; Prengaman, Bigbee, Baker, & Schmitz, 2014; Prengaman, Terry, Schmitz, & Baker, 2017). To address this challenge, policy, programs, and research have attempted to promote and enable recruitment and retention of nurses in rural and remote areas (Cramer et al., 2009; Mbemba, Gagnon, Pare, & Côté, 2013). Workforce programs have focused on rural communities *growing their own* (Cramer et al., 2009), while research programs have emphasised increasing students' rural clinical experiences and community exposure to increase the likelihood of rural employment (Prengaman, Bigbee, Baker et al., 2014; Prengaman, Terry, Schmitz et al., 2017; Smith et al., 2018; Terry, Baker, & Schmitz, 2016).

Numerous studies and programs have demonstrated various approaches to successfully improve rural recruitment and retention of health professionals, such as strategies to improve recruitment, enhancing job satisfaction, financial incentives, and supporting rural health career pathways (Fisher & Fraser, 2010). Some examples from the findings and recommendations include a history of student rural background being a predictor of rural career choice (Kondalsamy-Chennakesavan et al., 2015; MacQueen et al., 2018); metropolitan and rural students who undertake rural placements are more likely to undertake rural practice (Playford, Larson, & Wheatland, 2006); and having quality clinical placements and high quality clinical supervision impacts rural practice uptake (MacQueen et al., 2018; Smith et al., 2018)

While there has been a number of studies seeking to understand the factors that lead nursing students to have an interest in rural practice, there is limited understanding of how and why nursing

students choose rural locations to practice (Bushy & Leipert, 2005; Schofield, Fletcher, Fuller, Birden, & Page, 2009; Trépanier et al., 2013). However, a study by Sutton and colleagues (2016) indicated decision-making is influenced by a number of both non-professional and professional elements. It was shown that nursing and allied health students as well as recent graduates suggested that connectedness to people, place and community, seeing a career pathway and having an opportunity to experience living and working in a rural or remote area were vital in the decision making process. Despite these key findings, there were only 13 nursing students within the study, and there remains little insight into the specific factors that nursing students consider to be most important when considering a career in rural practice (Sutton et al., 2016; Trépanier et al., 2013).

In an effort to address the knowledge gap pertaining to the matters that nursing students find important in their deliberations about pursuing a rural career, a previously successful approach was used. Initially developed to address physician recruitment and retention issues in rural Idaho, the application has been shown to be fruitful in identifying what medical students find important when considering rural practice (Reed, Schmitz, Baker, Girvan, & McDonald, 2017; Schmitz, Baker, Nukui, Epperly, & Schmitz, 2011). The Community Apgar Questionnaire (CAQ) continues to be commercially used for the recruitment and retention of physicians across the US states of Idaho, Wyoming, North Dakota, Wisconsin, Alaska, Maine, Utah, Montana, Indiana and Iowa (National Recruitment and Retention Network, n.d.), and has been piloted in rural Australia as both a physician and nursing recruitment strategy (Baker, Schmitz, Epperly, Nukui, & Miller, 2010; Baker, Schmitz, Wasden, MacKenzie, & Epperly, 2012; Prengaman, Terry, Schmitz et al., 2017; Schmitz, Baker, Nukui et al., 2011; Schmitz, Baker, Mackenzie, Kinney, & Epperly, 2015).

Traditionally, the Apgar is used to quantify resources and capabilities of newborns (Apgar, 1966), so too the CAQ and the Nursing Community Apgar Questionnaire (NCAQ) help to quantify

resources and capabilities of a rural community to recruit and retain healthcare staff (Prengaman, Bigbee, Baker et al., 2014; Schmitz, Baker, Nukui et al., 2011). The aim of these tools is to provide an evidence base of key strengths, challenges, and the community's overall capacity to recruit and retain healthcare staff, while supporting health facilities to develop achievable long-term goals to meet the needs of a rural community (Prengaman, Bigbee, Baker et al., 2014; Schmitz, Baker, Nukui et al., 2011).

A modified CAQ has previously been used among medical students to understand their intentions to undertake rural practice after graduation (Reed et al., 2017). From the study conducted by Reed et al. (2017), it was highlighted that spousal satisfaction, the frequency of on-call, collegiality and competition among colleagues, and how medical students perceive being needed and supported by the community were demonstrated to be important factors to consider rural employment. The study further highlighted there were differences in what was thought important when considering a rural practice among male and female medical students and those students from rural and urban centers (Reed et al., 2017).

Similarly, a modified version of the NCAQ could be used to ask nursing students what level of importance they place on geographic, economic, management, scope of practice, and support factors when considering rural employment (Prengaman, Bigbee, Baker, et al., 2014). Understanding the internal personal factors that impact the intention of nursing students, including variances among students who are male, female, and have a rural or urban background, to take up rural employment is considered vital.

Therefore, the aim of the exploratory study is to examine the factors that nursing students consider the most important to undertake a rural career. Specifically, the study sought to answer the following questions:

1. What factors are most important for nursing students to consider contemplating a rural career?
2. Does gender, where students grew up, and where students want to work geographically after graduation, have an impact on what factors nursing students consider important in undertaking a rural career?

Methods

A cross sectional design was used to examine the importance Bachelor of Nursing students place on undertaking careers in rural areas. The study was conducted through an Australian university, which has campuses in rural, regional and peri-urban centers, which provides a wide range of views regarding future rural practice.

Ethical Considerations

Ethical approval was provided by the Federation University Australia Human Research Ethics Committee (Approval #18-017). The invitation to participate in the anonymous survey was sent in the mid-year break to reduce bias or impact on students' studies and reduce the risk of coercion. No incentives were offered to participants.

Sample

All nursing students ($n = 1,982$) studying the three-year bachelor's degree at the university were invited to complete an online questionnaire that examined their rural practice intentions. The nursing student cohort consisted of 60.0% ($n = 1,189$) rural and regional students, 87.8% ($n = 1,740$) female students, 8.8% ($n = 174$) international students, 0.8% ($n = 16$) Aboriginal or Torres Strait Islander, and 22.8% ($n = 452$) entering the program directly from high school. The sample size required ($n = 196$) was deemed to have power to detect a 5% absolute difference within and between groups, α (2 tailed) = 0.05, margin of error = $\pm 5\%$.

Data Collection Tool

Data were collected using a questionnaire that included 23 demographic questions including gender, year of birth, past and current place of residence, current employment, possible future work locations, and marital status. Rural background was defined by students when asked to indicate if they grew up in a) Inner city Metropolitan, b) Outer suburb Metropolitan, c) A large town or regional centre, d) A small town, or e) On a property or farm. Responses were coded in-line with relevant Modified Monash Model (MMM) geographical classifications as achieved elsewhere (Smith et al., 2018). In addition, the questionnaire included a modified version of the NCAQ, which included minor wording changes to meet the Australian clinical context. The NCAQ demonstrates good reliability with a Cronbach alpha of .96, and good face and content validity (Prengaman, Bigbee, Baker et al., 2014; Prengaman, Terry, Schmitz, et al., 2017).

The NCAQ contains 50 factors relevant to nurse practice intentions (recruitment and retention) in rural areas and ascertains the advantages or challenges and the level of importance of working in rural areas for each factor. The 50 factors are classified into five classes, each containing 10 questions, and include: (a) geographic factors, (b) economic and resource factors, (c) management and decision-making factors, (d) practice environment and scope of practice factors, and (e) community and practice support factors (Prengaman, Bigbee, Baker, et al., 2014). The modified NCAQ asked students about the level of importance they place on the 50 rural factors, and are measured using a four-point scale (very important, important, unimportant, very unimportant). Including the questions concerning the advantages/disadvantages of the 50 factors was deemed irrelevant, as students were not currently working as registered nurses in rural practice. The questionnaire tool took between 15-25 minutes to complete.

Data Collection

Data collection occurred between 28 June and 31 July 2018. Administration staff were provided with an invitation letter from the researchers to be forwarded to all nursing students via email to maintain anonymity of students. The invitation included a web link to the information regarding student participation, where students gave informed consent, and could then undertake the survey on-line. A follow-up recruitment email was sent from administration staff to nursing students in weeks 1, 2, and 4 post initial invitation until an adequate sample size ($n \geq 196$) was obtained to meet 95%CI (MOE $\pm 5\%$). Data were excluded if students did not complete the NCAQ questionnaire within the survey.

Data Analysis

Data were cleaned, checked, and analysed using Statistical Package for the Social Sciences (SPSS), Version 24.0 (IBM Corporation, 2016) and Microsoft Excel (Version 15.25.1). Data were then scored by assigning quantitative values to the four-point scale according to the participant's perceived importance (very important = 4, important = 3, unimportant = 2, very unimportant = 1), as described elsewhere (Prengaman, Bigbee, Baker et al., 2014; Prengaman, Terry, Schmitz et al., 2017). These importance scores for each factor were then divided by the number of participants to give an overall mean score. Independent sample t-test and one-way ANOVA were used to analyse data and identify differences according to metropolitan and rural residence, gender, and student intention to practice after graduating from the bachelor degree program. In addition, Chi-square tests were used to explore if where students grew up had a correlation with students' decisions concerning where they would work after graduation. Significance was determined at two-tailed $p \leq 0.05$.

Results

The web link survey was sent via email to a total of 1,982 first, second and third-year students undertaking a Bachelor of Nursing degree. Among the nursing students invited to participate, 329 responded, yielding a response rate of 16.6%, with the full completion of 202 NCAQ questionnaires (response rate of 10.2%). Table 1 outlines the demographics of the participants and highlights that more than half ($n = 114$) of the participants were between 30 and 49 years of age, with a fifth (19.3%, $n = 39$) of all participants being born overseas. More than half were married or in a partnered relationship, while just under four fifths (79.1%, $n = 159$) were in some form of paid employment.

Further, it was noted that where female students grew up was significantly associated with where they would be likely to take up work following graduation ($\chi = 15.424$, $df = 6$, $p = 0.017$), $\phi = 0.285$. Among female students, 21.2% ($n=12$) who grew up in metropolitan, and 50.6% ($n = 68$) of those who grew up in rural areas indicated they were likely to take up work in rural areas after graduation. On the contrary, where male students grew up was not significantly associated with where they were likely to take up work following graduation ($\chi^2 = 0.480$, $df = 2$, $p = 0.787$). Data, showed there was a tendency for males to want to work in metropolitan areas after graduation.

Table 1

Participant Demographics

Demographic information	Frequency	Percentage (%)
Gender ($n=202$)		
Female	181	89.6
Male	21	10.4
Year of program ($n=202$)		
First year	61	30.2
Second year	71	35.1
Third year	70	34.7

Demographic information	Frequency	Percentage (%)
Aboriginal or Torres Strait Islander (n=202)	3	1.5
Age (years) (n=190)		
Under 20	24	12.6
20-30 years	55	28.9
30-39 years	59	31.1
40-49 years	43	22.6
50 years and over	9	4.7
Born in Australia (n=202)		
Yes	163	80.7
No	39	19.3
Speak English as a second language (n=200)	24	12.0
Marital status (n=201)		
Single	72	35.9
Married/Partnered	112	55.7
Divorced/Separated	11	5.4
Other	6	3.0
Employment status (n=201)		
Not in paid labour force	36	17.9
Casual employee (no guaranteed hours of work)	57	28.4
Part-time employee (less than 38hrs week)	80	39.8
Full-time employee (38hrs a week)	22	10.9
Other (not adequately specified)	6	3.0
Currently an Enrolled (Division 2) Nurse (n=202)	39	19.3
Current after tax income a week (n=202)		
Less than \$400	85	42.1
\$400 - \$799	65	31.7
\$800 - \$1499	26	12.9
\$1500 - \$3000	3	1.5
Do not wish to answer	24	11.9
Where participant grew up (n=202)		
Inner City Metropolitan	10	5.0
Outer Suburb Metropolitan	48	23.8
Large Regional Center	45	22.3
Small Town	60	29.7
On a Property or Farm	30	14.9
Other	9	4.5
First in family to attend University (n=202)	105	52.0
After graduation: (n=202)		
I see myself practicing in a Metropolitan setting	85	42.1
I see myself practicing in a Rural/Remote setting	81	40.1
I do not know where I see myself	31	19.6
I see myself practicing overseas	5	3.5

When examining mean scores of the five NCAQ classes across the student cohort, management and decision-making factors were identified as being of highest importance among

students (3.53), followed by practice environment/scope factors (3.52), community and practice support factors (3.48), economic and resource factors (3.26), and geographic factors (3.01).

Factors most Important for Nursing Students to Consider a Rural Career

The factors considered most important for students to take up rural practice included emphasis on patient safety/high quality care, autonomy/respect, positive relationships/communication among different generations of nurses, job satisfaction/morale level and effective partnership between medical and nursing staff as outlined in Table 2. In addition, those factors considered and ranked the least important, compared to all other factors, included nurses having trained/lived in rural areas, climate, demographics/patient mix, size of the community, availability or accessibility of day care in the rural community.

Table 2

Top and Bottom 10 Most Important Factors for Nursing Students Considering Rural Practice

Top 10 Factors	Class	Mean (n=200)
Emphasis on patient safety/high quality care	Practice environment/scope	3.79
Autonomy/respect	Management and decision-making	3.74
Positive relationships/communication among different generations of nurses	Practice environment/scope	3.69
Job satisfaction/morale level	Practice environment/scope	3.69
Effective partnership between medical and nursing staff	Management and decision-making	3.68
Positive workplace culture/supportive working environment that fosters mentoring	Practice environment/scope	3.67
Nursing workforce adequacy and stability	Community and Practice Support	3.64
Emergency medical services	Community and Practice Support	3.62
Manageable workload/increased time with patients	Practice environment/scope	3.62
Nurse empowerment/nurses involved in design of best practice environment/unit-based decision making/professional collaboration between management and nursing staff	Management and decision-making	3.60
Bottom 10 Factors	Class	Mean (n=200)

Top 10 Factors	Class	Mean (n=200)
Compensation provided to nurse employees beyond salary	Economic or Resources	3.07
Social networking	Geographic	3.05
Recreational opportunities	Geographic	3.03
Moving allowance	Economic or Resources	3.03
Electronic medical record	Practice environment/scope	2.98
Nurses having trained/lived in rural areas	Geographic	2.92
Climate	Geographic	2.85
Demographics/patient mix	Geographic	2.84
Size of community	Geographic	2.56
Day care	Economic or Resources	2.54

Factors Important, Relative to Gender, for Students to Consider a Rural Career

Table 3 provides the results of the NCAQ factors for nursing students by gender. Nine factors were identified to be significantly different between males and females considering rural careers. In all cases, female students rated these factors much higher than male students. Factors with the greatest difference between genders included adequacy of schools for children ($p = .022$), effective partnership between medical and nursing staff ($p = .029$), teaching/ mentoring opportunities/ administrative role involvement/ challenge of multiple roles ($p = .012$), and the availability of school nurses, hospice, home health, and public health nursing services ($p = .031$).

Table 3

Importance of Community Apgar Factors by Gender

	Mean score		Difference	p-value
	Females (n=180)	Males (n=21)		
Adequacy of schools for children.	3.30	2.81	0.490	.022*
Effective partnership between medical and nursing staff	3.72	3.33	0.383	.029*
Teaching/mentoring opportunities/ administrative role involvement/ challenge of multiple roles (Direct care, leadership, teaching)	3.53	3.19	0.343	.012*
Availability of school nurses, hospice, home health, public health nursing services	3.46	3.14	0.321	.031*
Emergency Medical Services	3.65	3.33	0.320	.012*

The adequacy of materials and equipment on the nursing units in the hospital	3.59	3.29	0.303	.019*
Flexible scheduling/optimal shift availability/12-hour shifts	3.44	3.14	0.302	.033*
Welcome and recruitment program	3.40	3.10	0.301	.050*
Nursing workforce adequacy and stability	3.67	3.38	0.289	.022*

*denotes significance using independent sample t-test

Factors Important, Relative to Growing-up Place, for Students to Consider a Rural Career

In addition to what is considered most important among the genders, Table 4 provides insight into the most important NCAQ factors for nursing students with regard to where they grew up. Seven factors were identified to be significantly different between the metropolitan and rural students when considering rural careers. In all cases, metropolitan students rated factors, mostly economic in nature, much higher than rural students. Factors with the greatest difference included the existence and adequacy of internet access and technological equipment ($p = .010$), receiving compensation beyond salary ($p = .010$), a welcome and recruitment program ($p = .006$), and additional monetary compensation to employees who work shifts other than daylight ($p = .014$).

Table 4

Importance of Community Apgar Factors by Where Grew Up

	Mean score		Difference	p-value
	Metropolitan (n=102)	Rural (n=90)		
The existence and adequacy of internet access and technological equipment.	3.64	3.34	0.293	.010*
Compensation provided to nurse employees beyond salary.	3.21	2.92	0.284	.010*
Welcome and recruitment program	3.49	3.22	0.268	.006*
Additional monetary compensation to employees who work shifts other than daylight	3.45	3.21	0.240	.014*
Salary	3.57	3.34	0.224	.012*
Recognition/positive feedback	3.58	3.36	0.223	.015*
Professional development opportunities/career ladders	3.51	3.30	0.210	.027*

*denotes significance using independent sample t-test

Factors Important for Students to Consider a Rural Career

Beyond the most important factors among metropolitan and rural students, Table 5 highlights the factors most important for nursing students by their choice of future practice following graduation. Again, seven factors were identified to be significantly different between the students who wanted careers in metropolitan areas, rural areas or among those who were not sure where they would like to practice. Factors with the greatest difference occurred between the future geographic locations of metropolitan and rural areas. The factors included access to larger communities ($p = .019$) and size of the community ($p = .004$). Specifically, students who were metropolitan career focused still felt access to larger communities were vital, whereas students who were rural career focused felt having acknowledgement of nurses' accomplishments and services was more important.

Among those students who were unsure about their choice of future practice, it was identified 28.5% ($n = 58$) grew up in a metropolitan area, while the majority of students 66.9% ($n = 135$) grew up in a rural or regional area. The most important factors among this cohort regarding future practice were autonomy and respect (3.71), job satisfaction (3.68), effective partnership between medical and nursing staff (3.65), emphasis on patient safety/high quality care (3.65), and a sense of reciprocity between nurses and the community (3.65).

Table 5

Importance of Community Apgar Factors by Choice of Future Practice

	Mean score			Difference	p-value
	Metropolitan ($n=84$)	Rural ($n=80$)	Unsure ($n=31$)		
Access to larger community	3.32*	2.99*	3.16	0.334	.019
Size of community	2.75*	2.38*	2.55	0.375	.004
Moving allowance	3.06	2.88*	3.39*	0.512	.003
Autonomy/respect	3.67*	3.86*	3.71	-0.196	.016
Recognition/positive feedback	3.58*	3.81*	3.65	-0.229	.010

Emphasis on patient safety/high quality care	3.77	3.90*	3.65*	-0.255	.015
Nurse empowerment/nurses involved in design of best practice environment/unit-based decision-making/professional collaboration between management and nursing staff	3.57	3.76*	3.39*	-0.375	.002

*denotes where significant difference occurs using ANOVA

Discussion

The results show that management and decision-making as well as the practice environment factors were considered most important to students in their considerations of a rural career in nursing. Having trust and confidence in an effective executive team and nurse managers, along with having enough variety for graduates to invest their time into practice to gain a certain level of scope of practice is at the forefront of newly graduated nurses' decision-making and is consistent with other work already conducted by (Terry et al. (2016).

Practice environments, specifically workload and stress levels, have been highlighted to be key factors that students find important and will assist with their decision-making in regard to rural practice. Students in this study were conscious of the increasing demands on healthcare staff, which can lead to a reduction in client care, as such are consistent with findings from other studies (Prengaman, Bigbee, Baker, et al., 2014; Prengaman, Terry, Schmitz, et al., 2017) where students carefully examined the practice in rural areas to ensure that it is centered on quality care, and if rural healthcare facilities views concerning patient care are aligned with their own.

When considering the differences between female and male students in regard to areas of most importance when selecting rural practice, it was unremarkable that adequacy of schools for children, flexible schedules, and the availability of alternate pathways were considered more important among female nursing students than males nursing students. This is consistent with the

findings from Craig (2006), who posited that this may in fact be due to the additional roles and family responsibilities that females tend to have outside of work hours. In addition, the level of importance that is placed on these key factors may be linked to a necessity of making a career work within the constraints of life commitments and pressures (AlAzzam, AbuAlRub, & Nazzal, 2017). Although these differences between females and males were noted, it was also highlighted that children's day care was the least important factor when considering rural practice. This low level of importance may be due to the age groups or the life-stage of the students, where they may not have children or their children are school aged, as identified elsewhere (Skinner, Elton, Auer, & Pocock, 2014)

In terms of factors such as professional support, and autonomy and the importance placed upon them by students in their considerations for rural practice, the findings from this study are similar to that identified by Schofield and colleagues (2009) and Trépanier et al. (2013).

However, these findings highlight differences with existing research by Bushy and Leipert (2005) and Adams, Dollard, Hollins, and Petkov (2005), who identify isolation, receiving adequate social support and a focus on the recreational or enjoyable aspects of rural areas as playing central roles in the decisions of students to undertake rural practice in the future. These differences between studies may be related to the variances of the known benefits, perceived challenges, and what are considered the most important factors, when considering rural practice after graduation. In addition, this study focused solely on nursing students, and used a more nursing specific questionnaire, whereas other studies included employed nursing graduates and multi-disciplinary health professional samples (Adams et al., 2005; Schofield et al., 2009; Trépanier et al., 2013).

The differences between this study and other studies is further demonstrated in the current study, where many geographic factors were much less important than anticipated and observed

elsewhere (Lea & Cruickshank, 2005; Lea, Cruickshank, Paliadelis, et al., 2008; Trépanier et al., 2013). The lower emphasis on geographical factors being important for taking up rural practice may be due to the number of nursing students originating from regional or rural backgrounds, which made up of more than two-thirds (66.9.1%, n = 135) of the cohort. This suggests that recreational opportunities, socialising, the climate, and the size of the community are less important as these students are already cognizant of, already living in, or have intentions to return to these rural communities after graduation, a finding consistent with the work of Playford and colleagues (2006). In addition, those students who indicated that they intended to work in metropolitan areas, were more likely to rate geographical factors such as access to larger communities and the size of the community as more important than those considering rural practice, which was found in nurses elsewhere (Prengaman, Terry, Schmitz et al., 2017).

What is also highlighted is that almost a fifth (19.6%, n = 31) of students were unsure where they would practice after they graduate, which may be a large untapped resource to address workforce deficits among rural health services. It is an opportunity for industry and training bodies to focus their efforts in providing aspirational nursing students, who remain unsure in their decision-making, with greater theoretical context of rural healthcare supported by practical experiences (Smith et al., 2018). However, this requires further examination.

Conversely, there are metropolitan students who may not have fully considered, experienced or had adequate emersion in rural practice, which has been shown previously to be an important factor contributing to a higher tendency to choose rural careers (Adams et al., 2005). Those key factors that were identified as important by the cohort of students who were unsure of future rural practice include autonomy and respect, job satisfaction, and effective partnership between medical and nursing staff. This would suggest that if these factors were to be adequately addressed and

promoted when recruiting nurses to rural practice, then an increase in the interest of those applying for employment in rural areas may be seen (Trépanier et al., 2013).

This study did not seek to specifically illuminate the implications for health services with regard to recruitment and retention of nurses to rural areas. However, the findings from this study enable rural health services to better identify how they are situated with regard to their strengths and challenges in meeting the needs that are unique to the nursing workforce and that can then be augmented to guide nursing recruitment and arguably retention. The findings from this study suggest an emphasis by health services be placed on establishing and making transparent site specific information associated with factors of the *practice environment*, such as patient safety and quality care measures, staff workloads, indicators of positive staff morale and a sense of cohesion. As well as this, the findings suggest health services will be well served by demonstrating factors associated with *management and decision-making* such as levels of staff autonomy, and inclusion in decision-making.

Collectively these findings are supported by the work of others with Baernholdt and Mark (2009) noticing the value of transparent patient safety and quality data for potential candidates. Ragusa and Crowther (2012) suggest that demonstrating a positive and cohesive work culture – that is therefore less stressful – to a candidate will have a positive effect on their intention to seek rural employment. These authors make special mention of highlighting the interconnectivity of private and work life as a way of portraying the inherent cohesion of an organisation. Terry and colleagues (2016) also suggest strategies for rural institutions to capitalize on their sense of cohesion and suggests an open acknowledgement of the investment that an institution makes towards developing communication skills in their staff in preference to clinical expertise. With regard to management and decision-making, these same authors suggest that health services

involve the Chief Executive Officer, Chief Financial Officers, Chief Nursing Officers, and Nursing Managers in an initial recruitment meeting or interview as a means of satisfying the candidate's preference to be employed in a facility that has stable and cohesive leadership that is inclusive of all levels.

Limitations

This research captures the perceptions of a self-selected sample of nursing students at one point in time. In addition, the University has campuses in rural, regional and peri-urban locations, with a high mature aged student cohort from rural settings, this may limit the ability to generalize the findings as there are a myriad of factors that may have an impact on student responses. Further, the questionnaire assumes that the nursing students have context as to what nursing in rural areas involves, therefore this may be problematic; however, this highlights where future iterations of the questionnaire may be improved. In addition, student respondents of the survey may not be representative of the whole student cohort given the low response rate and completing the survey in full. The low response rate may be due to survey being administered in the mid-semester break. To increase response rate without increasing coercion, the survey may be more suited to be administered at the beginning or end of the year and outside the study period.

Conclusion

Studies have sought to understand the elements that lead nursing students to have an interest in rural practice, but there remains limited insights into the specific factors that students themselves consider to be important when contemplating a career in rural practice. Findings from the modified NCAQ relevant to nursing recruitment and retention highlighted that students recruited to this study identify (a) management and decision-making factors; and (b) practice environment and scope of practice factors as the two most important factors. Specifically, students prioritized

patient safety/high quality care, autonomy/respect and matters of staff cohesion/morale well above those factors that one might routinely consider to be most central. Students in this study rated compensation beyond salary, social networking, recreational opportunities, community size and having a background in a rural area as the least important factors for influencing their decisions about pursuing a career in a rural area. It is suggested that rural health services use other approaches to recruitment, and the factors identified from this study should be also considered as part of the recruitment process. Further, the outcomes suggest rural and regional universities emphasize meeting the key elements that students see as important and that will adequately prepare these future nurses to work in rural settings.

While the cohort of students within this study have a higher percentage of individuals with a history of growing up in a regional or rural setting, which might account for a reduced focus upon the factors above, we are suggesting that rural and regional universities turn towards approaches that make transparent the nuanced qualities required among students to meet the specific recruitment and retention challenges among healthcare agencies. Therefore, there is a need to find ever better means of providing details about patient safety and quality care as well as ways in which the management of the institution operates to establish and maintain a cohesive workplace, and this would appear, from this study, to be of more central importance. It would be reasonable to conclude that students in this study are not prioritising aspects of rural life outside of work and are instead focused on factors internal to the healthcare agency. Instead, of greatest importance to students is the *fit between* them and the agency and much less about their *fit with* the community into which they will be entering.

Acknowledgments

This research has been supported by the Australian Government through the School of Nursing and Healthcare professions at Federation University Australia. Initial funding for the development of the critical access hospital Community Apgar Program was provided by the Idaho Department of Health and Welfare, Bureau of Rural Health and Primary Care. We would also like to acknowledge the research assistance provided by the Center for Health Policy, Boise State University, Boise, Idaho, USA.

References

- Adams, M. E., Dollard, J., Hollins, J., & Petkov, J. (2005). Development of a questionnaire measuring student attitudes to working and living in rural areas. *Rural and Remote Health*, 5, 1-10.
- AlAzzam, M., AbuAlRub, R. F., & Nazzal, A. H. (2017). The relationship between work–family conflict and job satisfaction among hospital nurses. *Nursing Forum*, 52, 278-288.
<https://doi.org/10.1111/nuf.12199>
- Apgar, V. (1966). The newborn (Apgar) scoring system. *Pediatric Clinics North America*, 13, 645-650. [https://doi.org/10.1016/S0031-3955\(16\)31874-0](https://doi.org/10.1016/S0031-3955(16)31874-0)
- Baernholdt, M., & Mark, B. A. (2009). The nurse work environment, job satisfaction and turnover rates in rural and urban nursing units. *Journal of Nursing Management*, 17, 994-1001.
<https://doi.org/10.1111/j.1365-2834.2009.01027.x>
- Baker, E., Schmitz, D., Epperly, T., Nukui, A., & Miller, C. M. (2010). Rural Idaho family physicians' scope of practice. *The Journal of Rural Health*, 26, 85-89.
<https://doi.org/10.1111/j.1748-0361.2009.00269.x>

- Baker, E., Schmitz, D., Wasden, S., MacKenzie, L., & Epperly, T. (2012). Assessing Community Health Center (CHC) assets and capabilities for recruiting physicians: The CHC Community Apgar Questionnaire. *Rural and Remote Health*, 12(2179). Retrieved from <https://www.rrh.org.au/journal/article/2179>
- Bushy, A., & Leipert, B. (2005). Factors that influence students in choosing rural nursing practice: A pilot study. *Rural and Remote Health*, 5, 387-399.
- Craig, L. (2006). Does father care mean fathers share? A comparison of how mothers and fathers in intact families spend time with children. *Gender & Society*, 20, 259-281. <https://doi.org/10.1177/0891243205285212>
- Cramer, M., Duncan, K., Megel, M., & Pitkin, S. (2009). Partnering with rural communities to meet the demand for a qualified nursing workforce. *Nursing Outlook*, 57, 148-157. <https://doi.org/10.1016/j.outlook.2008.09.007>
- Fisher, K. A., & Fraser, J. D. (2010). Rural health career pathways: Research themes in recruitment and retention. *Australian Health Review*, 34, 292-296. <https://doi.org/10.1071/AH09751>
- IBM Corp. (2016). IBM SPSS Statistics for Windows, Version 24.0. In. Armonk, NY: IBM Corp.
- Kondalsamy-Chennakesavan, S., Eley, D. S., Ranmuthugala, G., Chater, A. B., Toombs, M. R., Darshan, D., & Nicholson, G. C. (2015). Determinants of rural practice: Positive interaction between rural background and rural undergraduate training. *The Medical Journal of Australia*, 202, 41-45. <https://doi.org/10.5694/mja14.00236>
- Lea, J., & Cruickshank, M. (2005). Factors that influence the recruitment and retention of graduate nurses in rural health care facilities. *Collegian*, 12(2), 22-27. [https://doi.org/10.1016/S1322-7696\(08\)60489-8](https://doi.org/10.1016/S1322-7696(08)60489-8)

- Lea, J., Cruickshank, M., Paliadelis, P., Parmenter, G., Sanderson, H., & Thornberry, P. (2008). The lure of the bush: Do rural placements influence student nurses to seek employment in rural settings? *Collegian*, 15(2), 77-82. <https://doi.org/10.1016/j.colegn.2008.02.004>
- MacQueen, I. T., Maggard-Gibbons, M., Capra, G., Raaen, L., Ulloa, J. G., Shekelle, P. G., ... Hempel, S. (2018). Recruiting rural healthcare providers today: A systematic review of training program success and determinants of geographic choices. *Journal of General Internal Medicine*, 33, 191-199. <https://doi.org/10.1007/s11606-017-4210-z>
- Mbemba, G., Gagnon, M.-P., Pare, G., & Côté, J. (2013). Interventions for supporting nurse retention in rural and remote areas: An umbrella review. *Human Resources for Health*, 11(44), 1-15. <https://doi.org/10.1186/1478-4491-11-44>
- National Recruitment and Retention Network. (n.d.). National recruitment and retention network healthcare jobs across the nation. Retrieved from <https://www.3rnet.org/>
- Playford, D., Larson, A., & Wheatland, B. (2006). Going country: Rural student placement factors associated with future rural employment in nursing and allied health. *Australian Journal of Rural Health*, 14, 14-19. <https://doi.org/10.1111/j.1440-1584.2006.00745.x>
- Prengaman, M., Bigbee, J., Baker, E., & Schmitz, D. (2014). Development of the Nursing Community Apgar Questionnaire (NCAQ): A rural nurse recruitment and retention tool. *Rural and Remote Health*, 14(2633). Retrieved from <https://www.rrh.org.au/journal/article/2633>
- Prengaman, M., Terry, D.R., Schmitz, D., & Baker, E. (2017). The nursing community apgar questionnaire in rural Australia: An evidenced based approach to recruiting and retaining nurses. *Online Journal of Rural Nursing and Health Care*, 17, 148-177. <https://doi.org/10.14574/ojrnhc.v17i2.459>

- Ragusa, A., & Crowther, A. (2012). 'I think it is the best job... I love it!' Engendering workplace satisfaction in rural and remote Australian mental health nursing. *Rural Society*, 22, 45-58. <https://doi.org/10.5172/rsj.2012.22.1.45>
- Reed, A., Schmitz, D., Baker, E., Girvan, J., & McDonald, T. (2017). Assessment of factors for recruiting and retaining medical students to rural communities using the Community Apgar Questionnaire. *Family Medicine*, 49, 132-136.
- Schmitz, D., Baker, E., MacKenzie, L., Kinney, L., & Epperly, T. (2015). Assessing Idaho rural family physician scope of practice over time. *The Journal of Rural Health*, 31, 292-299. <https://doi.org/10.1111/jrh.12107>
- Schmitz, D., Baker, E., Nukui, A., Epperly, T., & Schmitz, D. (2011). Idaho rural family physician workforce study: The community Apgar questionnaire. *Rural and Remote Health*, 11(1769).
- Schofield, D., Fletcher, S., Fuller, J., Birden, H., & Page, S. (2009). Where do students in the health professions want to work? *Human Resources for Health*, 7(1), 74-82. <https://doi.org/10.1186/1478-4491-7-74>
- Skinner, N., Elton, J., Auer, J., & Pocock, B. (2014). Understanding and managing work-life interaction across the life course: a qualitative study. *Asia Pacific Journal of Human Resources*, 52, 93-109. <https://doi.org/10.1111/1744-7941.12013>
- Smith, T., Sutton, K., Pit, S., Muyambi, K., Terry, D., Farthing, A., . . . Cross, M. (2018). Health professional students' rural placement satisfaction and rural practice intentions: A national cross-sectional survey. *Australian Journal of Rural Health*, 26, 26-32. <https://doi.org/10.1111/ajar.12375>
- Sutton, K., Waller, S., Fisher, K., Farthing, A., McAnnally, K., Russell, D., . . . Carey, T. (2016). Understanding the decision to relocate rural amongst urban nursing and allied health students

and recent graduates. Newborough: Monash University Department of Rural Health.

Retrieved from http://www.rhwa.org.au/client_images/1847271.pdf

Terry, D., Baker, E., & Schmitz, D. (2016). Community assets and capabilities to recruit and retain

GPs: the Community Apgar Questionnaire in rural Victoria. *Rural Remote Health*, 16(3990)

1-10. Retrieved from http://www.rrh.org.au/publishedarticles/article_print_3990.pdf

Trépanier, A., Gagnon, M.-P., Mbemba, G. I. C., Côté, J., Paré, G., Fortin, J.-P., ... Courcy, F.

(2013). Factors associated with intended and effective settlement of nursing students and newly graduated nurses in a rural setting after graduation: A mixed-methods review.

International Journal of Nursing Studies, 50, 314-325. <https://doi.org/10.1016/j.ijnurstu.2012.09.005>